



Docket No.: 204403US0PCT

ASSISTANT COMMISSIONER FOR PATENTS
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RE: Application Serial No.: 09/806,511

Applicants: Bernard ASPAR, et al.

Filing Date: April 16, 2001

For: METHOD FOR PRODUCING A BURIED LAYER OF
MATERIAL IN ANOTHER MATERIAL

Group Art Unit: 2812

Examiner: LATTIN, C.

SIR:

Attached hereto for filing are the following papers:

Request for Reconsideration, Request for Extension of Time (2 months)

Our check in the amount of \$400.00 is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF

BERNARD ASPAR ET AL : EXAMINER: LATTIN, C.

SERIAL NO: 09/806,511 :

FILED: APRIL 16, 2001 : GROUP ART UNIT: 2812

FOR: METHOD FOR PRODUCING
A BURIED LAYER OF MATERIAL
IN ANOTHER MATERIAL

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REQUEST FOR RECONSIDERATION

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Responsive to the Office Action dated July 11, 2002, Applicants respectfully request reconsideration of the above-identified application in view of the following remarks.

Claims 22-42 remain pending in the application.

REMARKS

The rejection of Claims 22-42 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,633,174 (Li) in view of *Oxygen Precipitation Control by Hydrogen and Preannealing at 425 °C in Czochralski Silicon Crystals* (Hara et al), is respectfully traversed.

As recited in Claim 22, the present invention is a method for producing a layer of a first material embedded in a substrate comprising at least one second material, comprising the following stages: formation in said substrate, at the level of the desired embedded layer, and

by a method excluding the formation of a porous layer, of a layer of microcavities intended to serve as centers of nucleation and volume accommodation to produce said first material in said second material, formation of precipitate embryos from the nucleation centers formed, the precipitate embryos corresponding to the first material, growth of the precipitates from the embryos through species concentration corresponding to the first material and carried to the microcavity layer.

It is noted that the present invention is characterized by the production of a layer of a **first material** embedded in a substrate comprising at least one **second material**.

As described in the specification beginning at page 1, line 6, at present, substrates of the Silicon on Insulator or SOI type are of great interest for microelectronic applications in the domain of low consumption, and there are several methods for obtaining such substrates. The present invention is considered to be an improvement of such prior art methods.

Li is directed to a method of making a silicon wafer having an improved single-crystal silicon layer with improved electronic properties on a defect layer produced by hydrogen ion implantation and two subsequent annealing steps--the silicon wafer is subjected to a first annealing step to form an interior layer of hydrogen bubbles beneath the surface layer and during another annealing step, the bubble-related defects getter the impurities in the surface layer (column 2, lines 13-21). Li discloses that his process overcomes the disadvantages of prior art materials such as GaAs, CZ silicon, and SOI material (column 2, lines 28-30). Indeed, in the Background of the Invention section, Li describes the disadvantages of these materials and thus, teaches away from materials such as SOI. It is clear that in Li, the surface layer and the buried layer are both made of silicon but with different electrical properties. Thus, Li does not disclose a process wherein a first material is embedded in a substrate comprising at least one second material, as these terms would be understood herein. In the

present invention, the precipitate embryos can be formed from species present in the second material or from species introduced. The last step of the method comprises the introduction of species corresponding to the precipitate embryos in order to make the embryos grow to obtain the first material. Thus, whereas the hydrogen bubbles of Li are used to getter the impurities present in the surface layer, the microcavities of the present invention are used to create a layer of a different material.

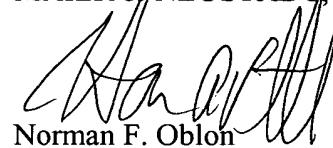
Hara et al does not remedy the above-discussed deficiencies of Li. Hara et al is drawn to a method of using hydrogen to increase the diffusion coefficient of oxygen to cause embryo formation and precipitation. However, without the present disclosure as a guide, it is not clear why one skilled in the art would combine Li and Hara et al since, as discussed above, Li is not concerned with a first material and a second material.

For all the above reasons, it is respectfully requested that the rejection over Li in view of Hara et al be withdrawn.

All of the presently-pending claims are believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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